

s.d. *KSL***Memorandum**

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From: Frederick P. Hughes *FPH*

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AM-BN-L-5474

Subject: Permit to Construct Exemption for the WMF 679 Maintenance Workshop for the AMWTP

The attached Category I Exemption documents that the WMF 679 Maintenance Workshop for the AMWTP meets all of the requirements for exemption from the requirement to obtain a permit to construct from the Idaho Department of Environmental Quality. The analysis that supports the exemption is based on a conservative estimate for welding rod use of 100 lb of each of the six types of rod. The welding hood is the only permissible source of emissions from WMF-679.

This memo and the attached exemption will be placed in the facility operating record and submitted to the DEQ upon request. Based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

attachment

cc:

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**CATEGORY 1, LEVEL I EXEMPTION FOR THE
AMWTP WMF-679
MAINTENANCE WORKSHOP**

January 2003

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1.0 Introduction

The Advanced Mixed Waste Treatment Project (AMWTP) is located at the Radioactive Waste Management Complex (RWMC) at the Idaho National Engineering and Environmental Laboratory (INEEL). The AMWTP Maintenance Workshop is located in Building WMF-679.

Maintenance Workshop activities include:

- General workshop welding,
- Metal working using lathes, milling, and drilling machines,
- Compressed air tool work,
- Electrical soldering,
- Electrical wiring/repair/troubleshooting of machines and electrical components,
- General fabrication work,
- Bench testing of equipment and,
- General mechanical repair.

This document demonstrates that the AMWTP Maintenance Workshop Facility meets the requirements to exempt the facility from obtaining a permit to construct. Welding activities meet all of the general exemption criteria (IDAPA 58.01.01.220) and the specific requirements for a Category I Exemption (IDAPA 58.01.01.221 and IDAPA 58.01.01.223).

2.0 Process Description

The Maintenance Workshop is used intermittently as a shop where various maintenance and equipment repair activities are conducted. The repair and maintenance program for the AMWTP includes welding on an as-needed basis and will not be a production type of welding activity. The anticipated weld rod usage each year is anticipated to be less than 100 lbs of types E6010, E6011, E7018, E7024, and E70S.

3.0 Emission Description

Emissions will be consistent with any welding activity using the aforementioned weld rod types. The hazardous air pollutants (HAP) of concern are chromium, chromium 6+, cobalt, manganese,

nickel, lead, and particulate matter (PM)-10, as specified in AP-42. Factors used to perform the emission calculations are located in AP-42, Chapter 12.19, Tables 12.19-1 and 12.19-2.

4.0 Calculation of Emissions

4.1 Particulate

Particulate emissions were calculated using emission factors located in AP-42, Chapter 12, Table 12.19-1. The amount of weld rod used annually is estimated as 100 lb maximum for each type of weld rod. The calculation for particulate emissions is as follows:

$$(weld\ rod\ used\ lb/yr)(AP-42\ emission\ factor\ lb/10^3\ lb) = amount\ of\ particulate\ emitted$$

$$lb/yr / 2000\ lb = particulate\ emissions\ in\ ton/yr.$$

See Table 1 for the maximum estimated annual PM-10 emissions.

4.2 Hazardous Air Pollutants (HAP)

HAP emissions for Submerged Metal Arc Welding (SMAW) for weld rods E6010, E6011, E7018, E7024 and Gas Metal Arc Welding (GMAW) for E70S were calculated using emission factors located in AP-42, Chapter 12, Table 12.19-2. The calculation for HAP is as follows:

$$(weld\ rod\ used\ lb/yr)(AP-42\ emission\ factor\ 10^{-1}/10^3\ lb) = amount\ of\ particulate\ emitted$$

$$lb/yr / 8760\ hr/yr = HAP\ emissions\ in\ lb/hr.$$

See Table 1 for the maximum estimated HAP emissions.

Table 1. Estimated Maximum Emissions for Welding at WMF-679 Maintenance Workshop

Pollutant	Emissions per Rod Type						Limit (IDAPA 58.01.01.xxx)	% of Limit
	E6010	E6011	E7018	E7024	E70S	Total		
Cr (lb/hr)	3.42E-08	5.71E-08	6.85E-08	1.14E-08	1.14E-08	1.8E-07	3.30E-02 (585)	0.0006
Cr 6+ (lb/hr)	1.14E-08	0	0	0	0	1.14E-08	5.60E-07 (586)	2.04
Co (lb/hr)	0	1.14E-08	1.14E-08	0	1.14E-08	3.42E-08	7.00E-03 (585)	0.0005
Mn (lb/hr)	1.13E-05	1.14E-05	1.18E-05	7.18E-06	3.63E-06	4.5E-05	6.70E-02 (585)	0.07
Ni (lb/hr)	4.57E-08	5.71E-08	2.28E-08	0	1.14E-08	1.4E-07	2.70E-05 (586)	0.51
PM-10 (ton/yr)	1.28E-03	1.92E-03	9.20E-04	4.60E-04	2.60E-04	1.6E-02	15 (006)	0.11

5.0 Results Analysis

Below is a list of the requirements and how the requirements are met for this Category I Exempt source. The welding activities conducted in the WMF-679 Maintenance Workshop meet these Category I requirements.

220. GENERAL EXEMPTION CRITERIA FOR PERMIT TO CONSTRUCT EXEMPTIONS

01. General Exemption Criteria. Sections 220 through 223 may be used by owners or operators to exempt certain sources from the requirement to obtain a permit to construct. No permit to construct is required for a source that satisfies all of the following criteria, in addition to the criteria set forth at Sections 221, 222, or 223:

a. The maximum capacity of a source to emit an air pollutant under its physical and operational design without consideration of limitations on emission such as air pollution control equipment, restrictions on hours of operation and restrictions on the type and amount of material combusted, stored or processed would not:

i. Equal or exceed one hundred (100) tons per year of any regulated air pollutant.

Response	This source will not exceed one hundred tons per year of any regulated air pollutant (see Table 1).
	ii. Cause an increase in the emissions of a major facility that equals or exceeds the significant emissions rates set out in the definition of significant at Section 006.
Response	This source does not exceed any significant levels listed in Section 006 (see Table 1).
	iii. Cause or significantly contribute to a violation of an ambient air quality standard, based upon the applicable air quality models, data bases, and other requirements of 40 CFR Part 51, Appendix W (Guideline on Air Quality Models). No demonstration under this subsection is required for those sources listed at Subsection 222.02.
Response	Screening models were not performed for this source because all emissions are well below the emission limits specified in IDAPA 58.01.01.006, .585, and 586. In addition, the anticipated emissions are well below the 10% limit specified in IDAPA 58.01.01.223.01.
	b. Combination. The source is not part of a proposed new major facility or part of a proposed major modification.

Response	The source is not a proposed new facility nor is it a major facility modification.
<p>02. Record Retention. Unless the source is subject to and the owner or operator complies with Section 385, the owner or operator of the source, except for those sources listed in Subsections 222.02.a. through 222.02.g., shall maintain documentation on site, which shall identify the exemption determined to apply to the source and verify that the source qualifies for the identified exemption. The records and documentation shall be kept for a period of time not less than five (5) years from the date the exemption determination has been made or for the life of the source for which the exemption has been determined to apply, which ever is greater, or until such time as a permit to construct or an operating permit is issued which covers the operation of the source. The owner or operator shall submit the documentation to the Department upon request.</p>	
Response	A copy of this exemption will be kept in the Facility Operating Record and submitted to the Department upon request.
<p>222. CATEGORY I EXEMPTION.</p> <p>No permit to construct is required for a source that satisfies the criteria set forth in Section 220 and the following:</p> <p>01. Below Regulatory Concern. The maximum capacity of a source to emit an air pollutant under its physical and operational design considering limitations on emissions such as air pollution control equipment, restrictions on hours of operation and restrictions on the type and amount of material combusted, stored or processed shall be less than ten percent (10%) of the significant emission rates set forth in the definition of significant at Section 006.</p>	
Response	Emissions from this source are below regulatory concern as specified in Section 006 (see Table 1).
<p>02. The source shall have potential emissions that are less than one percent (1%) of the applicable radionuclides standard in 40 CFR Part 61, Subpart H.</p>	
Response	Radionuclide emissions are not anticipated from this source.
<p>03 Toxic Air Pollutants. The source shall comply with Section 223.</p>	

Response	All pollutants of concern meet the requirements of IDAPA 58.01.01.223 for a Below Regulatory Concern exemption.
223 Exemption Criteria and Reporting Requirements for Toxic Air Pollutant Emissions. <p>No permit to construct for toxic air pollutants are required for a source that satisfies any of the exemption criteria below, the recordkeeping requirements at Subsection 220.02, and reporting requirements as follows:</p>	
<p>01. Below Regulatory Concern. The source qualifies for a BRC exemption if the uncontrolled emission rate (refer to Section 210) for all toxic air pollutants emitted by the source is less than or equal to ten percent (10%) of all screening emission levels listed in Sections 585 and 586.</p>	
Response	All pollutants of concern listed in Sections 585 and 586 are below the 10% screening levels (see Table 1).